

What is claimed is:

1. A method of fabricating a fluid flow field plate comprising the steps of:

- 5 (a) roller embossing a first embossed pattern in a sheet of compressible, electrically conductive material, and then
- (b) reciprocal embossing a second embossed pattern in the sheet.

2. The method of claim 1, wherein the first embossed pattern comprises a fluid flow field channel region and the second embossed pattern comprises a fluid distribution region.

3. The method of claim 2, wherein the reciprocal embossing step comprises simultaneously reciprocally embossing a first fluid distribution region of one fluid flow field plate and a second fluid distribution region of another fluid flow field plate.
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4. The method of claim 3, wherein the reciprocal embossing step is performed at preset length intervals of the roller embossed sheet material, the preset length equal to the desired length of the fluid flow field plate.
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5. The method of claim 3, wherein the reciprocal embossing step further comprises cutting the sheet between the first fluid distribution region of the one fluid flow field plate and the second fluid distribution region of the other fluid flow field plate.

6. The method of claim 5, wherein the reciprocal embossing step is performed at preset length intervals of the roller embossed sheet material, the preset length equal to the desired length of the fluid flow field plate.

7. The method of claim 1, wherein the first embossed pattern comprises fluid flow field channels and the second embossed pattern comprises manifold openings and supply channels.

8. The method of claim 7, wherein the reciprocal embossing step comprises simultaneously reciprocally embossing a first set of manifold openings and supply channels of one fluid flow field plate and a second set of manifold openings and supply channels of another fluid flow field plate.

9. The method of claim 8, wherein the reciprocal embossing step is performed at preset length intervals of the roller embossed sheet

material, the preset length equal to the desired
5 length of the fluid flow field plate.

10. The method of claim 8, wherein the reciprocal embossing step further comprises cutting the sheet between the first set of manifold openings and supply channels of the one
5 fluid flow field plate and the second set of manifold openings and supply channels of the other fluid flow field plate.

11. The method of claim 10, wherein the reciprocal embossing step is performed at preset length intervals of the roller embossed sheet material, the preset length equal to the desired
5 length of the flow field plate.

12. The method of claim 1, wherein the first embossed pattern comprises substantially straight, parallel fluid flow field channels and the second embossed pattern comprises a fluid
5 distribution region.

13. The method of claim 12, wherein the reciprocal embossing step comprises simultaneously reciprocally embossing a first fluid distribution region of one fluid flow field
5 plate and a second fluid distribution region of another fluid flow field plate.

14. The method of claim 13, wherein the reciprocal embossing step is performed at preset length intervals of the roller embossed sheet material, the preset length equal to the desired
5 length of the fluid flow field plate.

15. The method of claim 13, wherein the reciprocal embossing step further comprises cutting the sheet between the first fluid distribution region of the one fluid flow field
5 plate and the second fluid distribution region of the other fluid flow field plate.

16. The method of claim 15, wherein the reciprocal embossing step is performed at preset length intervals of the roller embossed sheet material, the preset length equal to the desired
5 length of the fluid flow field plate.

17. The method of claim 1, wherein the sheet is pre-impregnated with a curable polymeric composition.

18. The method of claim 17, wherein the first embossed pattern comprises a fluid flow field channel region and the second embossed pattern comprises a fluid distribution region.

19. The method of claim 17, wherein the first embossed pattern comprises fluid flow field

channels and the second embossed pattern comprises manifold openings and supply channels.

20. The method of claim 17, wherein the first embossed pattern comprises substantially straight, parallel fluid flow field channels and the second embossed pattern comprises a fluid
5 distribution region.

21. The method of claim 17, further comprising curing the pre-impregnated sheet, wherein the curing step is performed after the roller embossing and reciprocal embossing steps.
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22. The method of claim 21, wherein the first embossed pattern comprises a fluid flow field channel region and the second embossed pattern comprises a fluid distribution region.

23. The method of claim 21, wherein the first embossed pattern comprises fluid flow field channels and the second embossed pattern comprises manifold openings and supply channels.

24. The method of claim 21, wherein the first embossed pattern comprises substantially straight, parallel fluid flow field channels and the second embossed pattern comprises a fluid
5 distribution region.

25. The method of claim 17, wherein the sheet is expanded graphite sheet material.

26. The method of claim 25, wherein the first embossed pattern comprises a fluid flow field channel region and the second embossed pattern comprises a fluid distribution region.

27. The method of claim 25, wherein the first embossed pattern comprises fluid flow field channels and the second embossed pattern comprises manifold openings and supply channels.

28. The method of claim 25, wherein the first embossed pattern comprises substantially straight, parallel fluid flow field channels and the second embossed pattern comprises a fluid
5 distribution region.